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Kim

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(54) **IMAGE PRINTING SYSTEM AND PARTITIONED PRINTING METHOD THEREIN**

(75) Inventor: **Jong-san Kim**, Yongin (KR)

(73) Assignee: **Samsung Electronics Co., Ltd.**, Kyungki-Do (KR)

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(52) **U.S. Cl.** **358/1.15**; 358/1.13
(58) **Field of Search** 358/1.15, 1.13, 358/1.9, 1.17

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,778,253	A *	7/1998	Blair et al.	395/888
5,815,187	A *	9/1998	Ross, Jr.	347/131
5,822,510	A *	10/1998	LeClair et al.	395/116
5,892,587	A *	4/1999	Okada et al.	358/402
6,134,017	A *	10/2000	Schlank et al.	358/1.15

FOREIGN PATENT DOCUMENTS

JP	9-231027	9/1997	G06F/3/12
JP	10-143450	5/1998	G06F/13/00

* cited by examiner

Primary Examiner—Jerome Grant, II
Assistant Examiner—Douglas Tran
(74) *Attorney, Agent, or Firm*—Sughrue Mion, PLLC

(57) **ABSTRACT**

An image printing system, and a printing method according to the selection of either whole printing or partitioned printing, are provided. The image printing system includes a printer driver installed in a computer and a printer controller installed in a printer connected to the computer. The printer driver provides a print option menu on a screen of a display device to allow a user to select either whole printing or partitioned printing on a print object manuscript file to be printed, and outputs the selected result information to the printer together with a print data file transformed into a printer language with respect to the manuscript file. The printer controller reads data transmitted from the computer via a communications interface and determining a print sequence by a printer engine so that the total pages of a print data file selected to be printed by partitioned-printing are divided and printed in segments at intervals of a set period in units of a determined number of pages. In the image printing system and the printing method according to the selection of partitioned printing, non-urgent print object files can be printed by partitioned printing. As a result, printer use time between users can be adjusted.

9 Claims, 9 Drawing Sheets

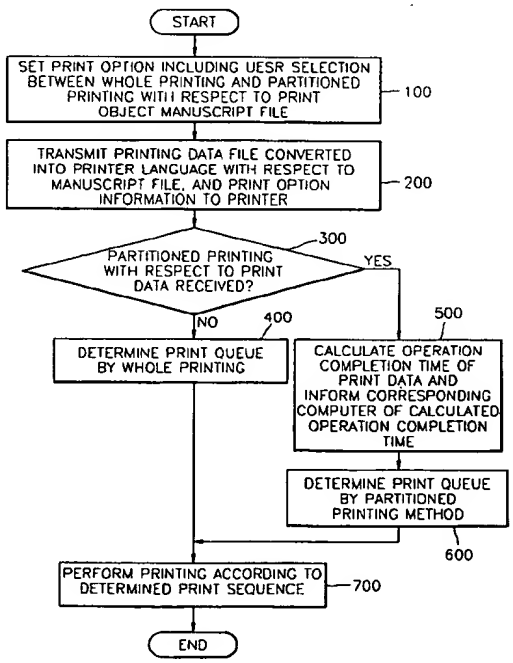

FIG. 1

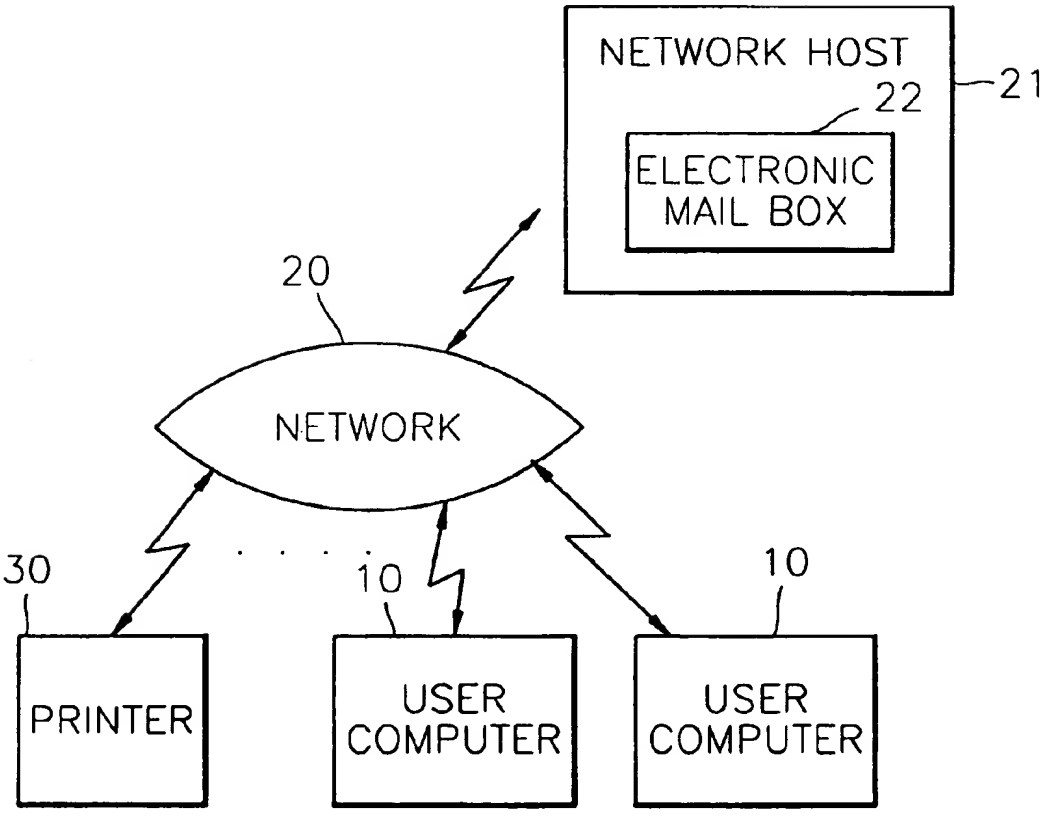
NETWORK HOST
22
21
ELECTRONIC MAIL BOX
20
NETWORK
30
10
10
PRINTER
USER COMPUTER
USER COMPUTER

FIG. 2

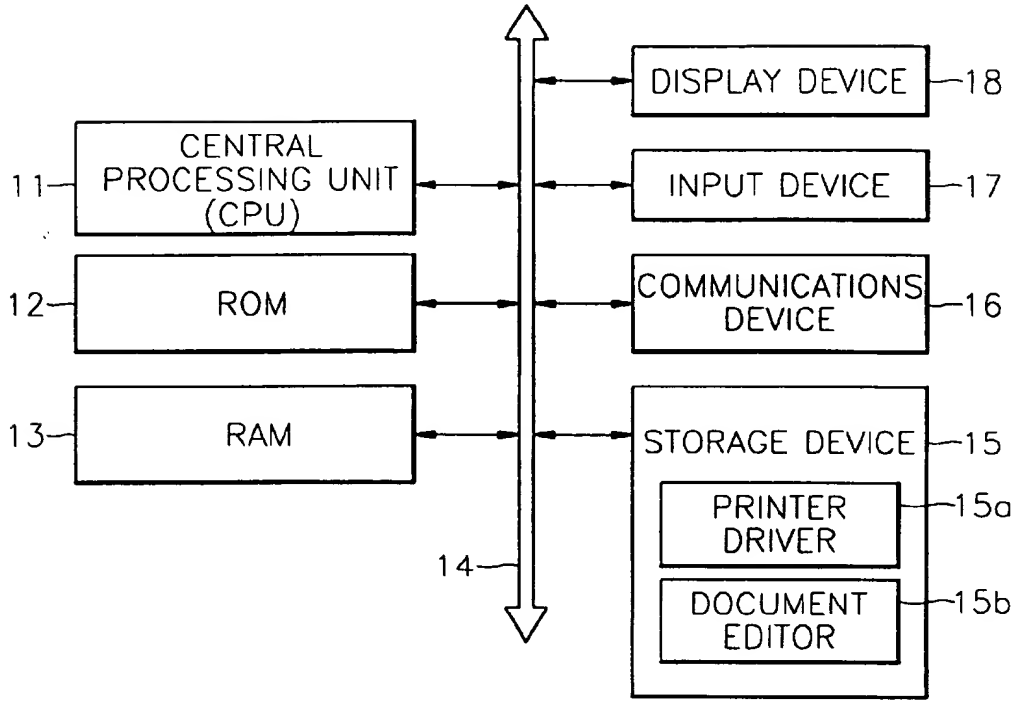
DISPLAY DEVICE
18
CENTRAL PROCESSING UNIT (CPU)
11
INPUT DEVICE
17
ROM
12
COMMUNICATIONS DEVICE
16
RAM
13
STORAGE DEVICE
15
PRINTER DRIVER
15a
DOCUMENT EDITOR
15b
14

FIG. 3

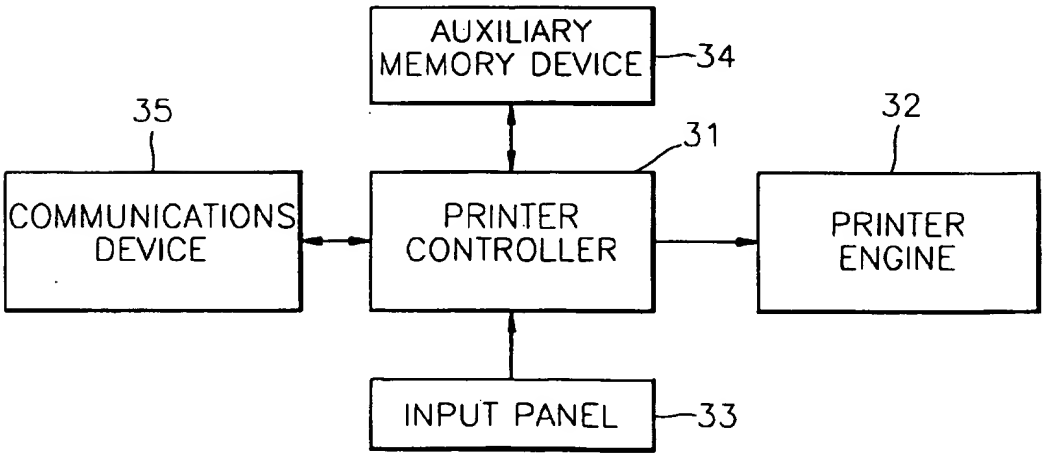
AUXILIARY MEMORY DEVICE
34
35
32
31
COMMUNICATIONS DEVICE
PRINTER CONTROLLER
PRINTER ENGINE
INPUT PANEL
33

FIG. 4

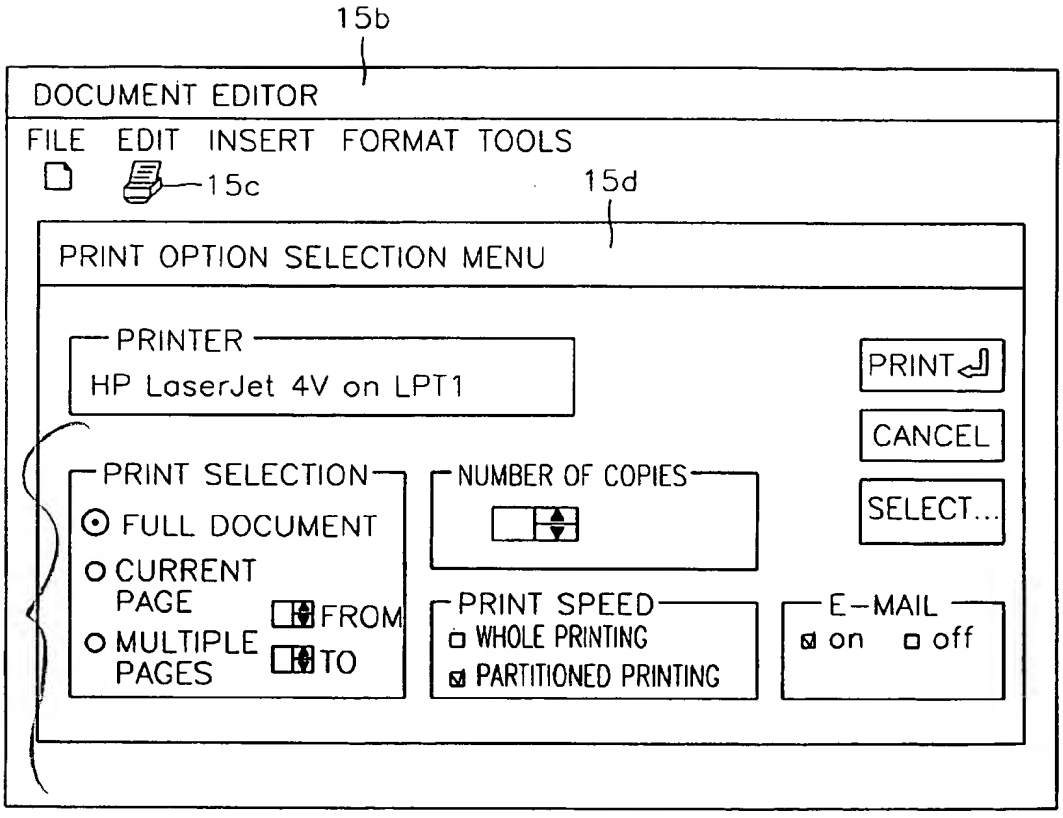
15b
DOCUMENT EDITOR
FILE EDIT INSERT FORMAT TOOLS
15c
15d
PRINT OPTION SELECTION MENU
PRINTER
HP LaserJet 4V on LPT1
PRINT
CANCEL
SELECT...
PRINT SELECTION
FULL DOCUMENT
CURRENT PAGE
MULTIPLE PAGES
FROM
TO
NUMBER OF COPIES
PRINT SPEED
WHOLE PRINTING
PARTITIONED PRINTING
E-MAIL
on
off

FIG. 5

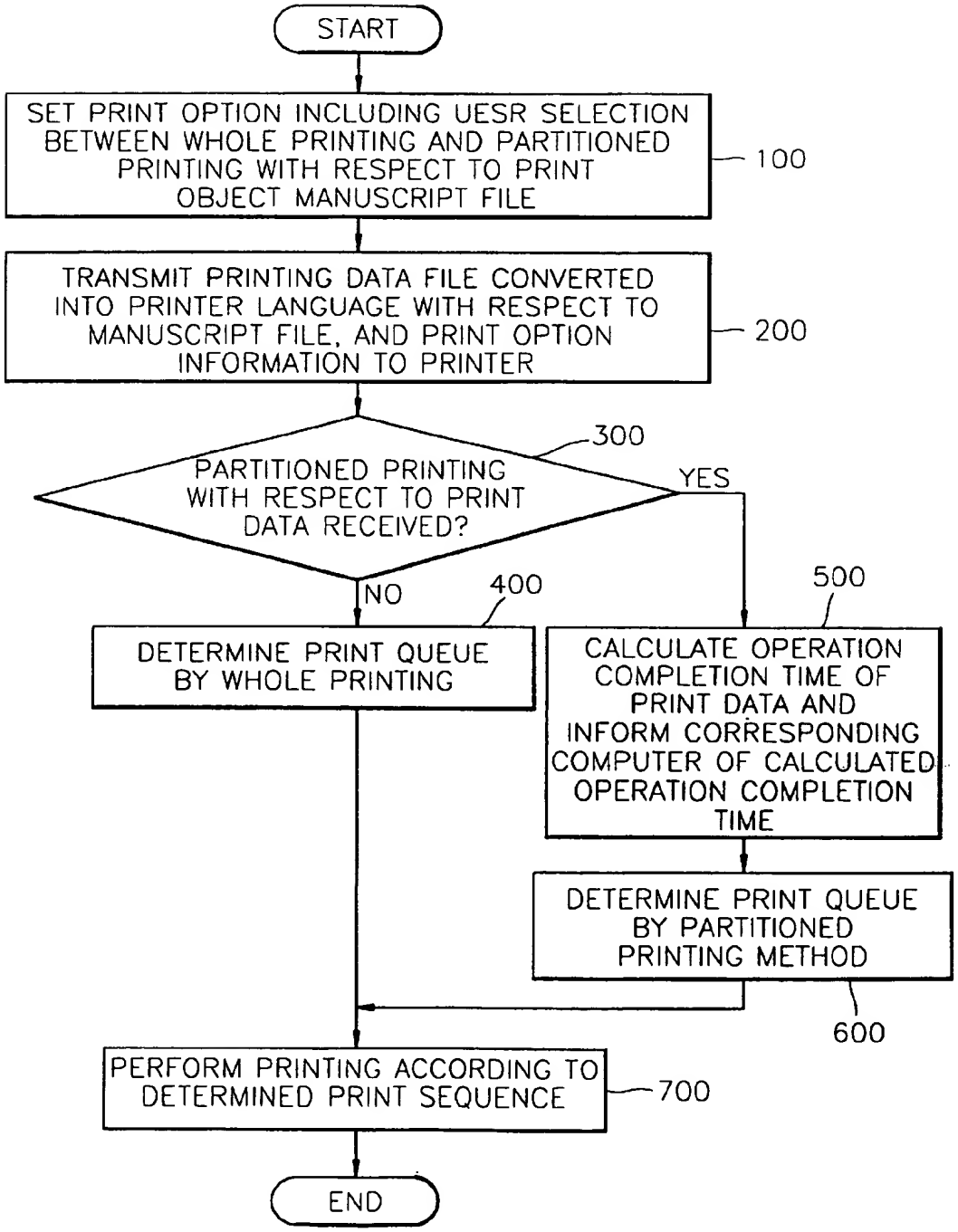
START
SET PRINT OPTION INCLUDING UESR SELECTION BETWEEN WHOLE PRINTING AND PARTITIONED PRINTING WITH RESPECT TO PRINT OBJECT MANUSCRIPT FILE
100
TRANSMIT PRINTING DATA FILE CONVERTED INTO PRINTER LANGUAGE WITH RESPECT TO MANUSCRIPT FILE, AND PRINT OPTION INFORMATION TO PRINTER
200
PARTITIONED PRINTING WITH RESPECT TO PRINT DATA RECEIVED?
300
YES
NO
400
500
DETERMINE PRINT QUEUE BY WHOLE PRINTING
CALCULATE OPERATION COMPLETION TIME OF PRINT DATA AND INFORM CORRESPONDING COMPUTER OF CALCULATED OPERATION COMPLETION TIME
DETERMINE PRINT QUEUE BY PARTITIONED PRINTING METHOD
600
PERFORM PRINTING ACCORDING TO DETERMINED PRINT SEQUENCE
700
END

FIG. 6A

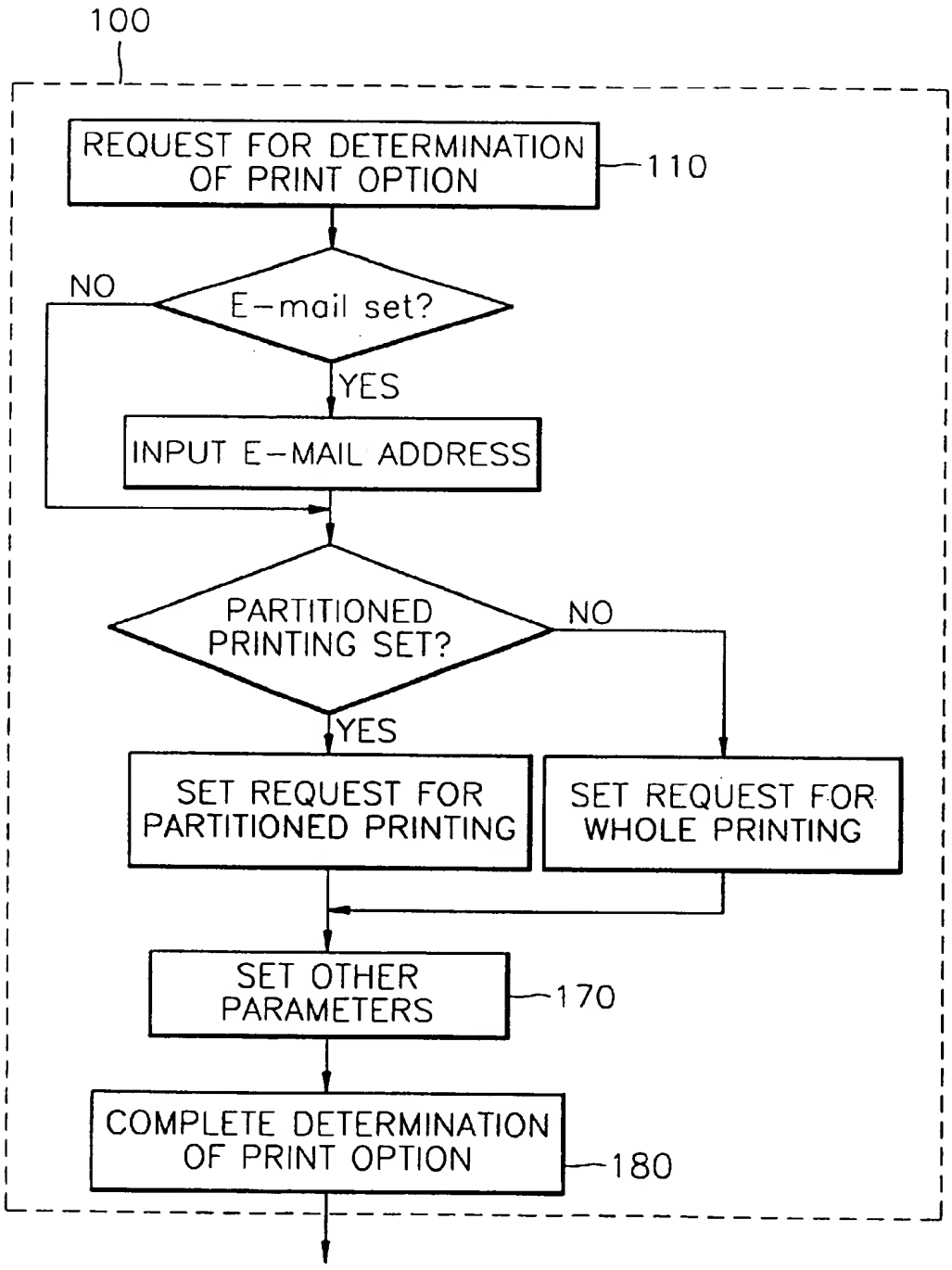
100
REQUEST FOR DETERMINATION OF PRINT OPTION
110
NO
E-mail set?
YES
INPUT E-MAIL ADDRESS
PARTITIONED PRINTING SET?
NO
YES
SET REQUEST FOR PARTITIONED PRINTING
SET REQUEST FOR WHOLE PRINTING
SET OTHER PARAMETERS
170
COMPLETE DETERMINATION OF PRINT OPTION
180

FIG. 6B

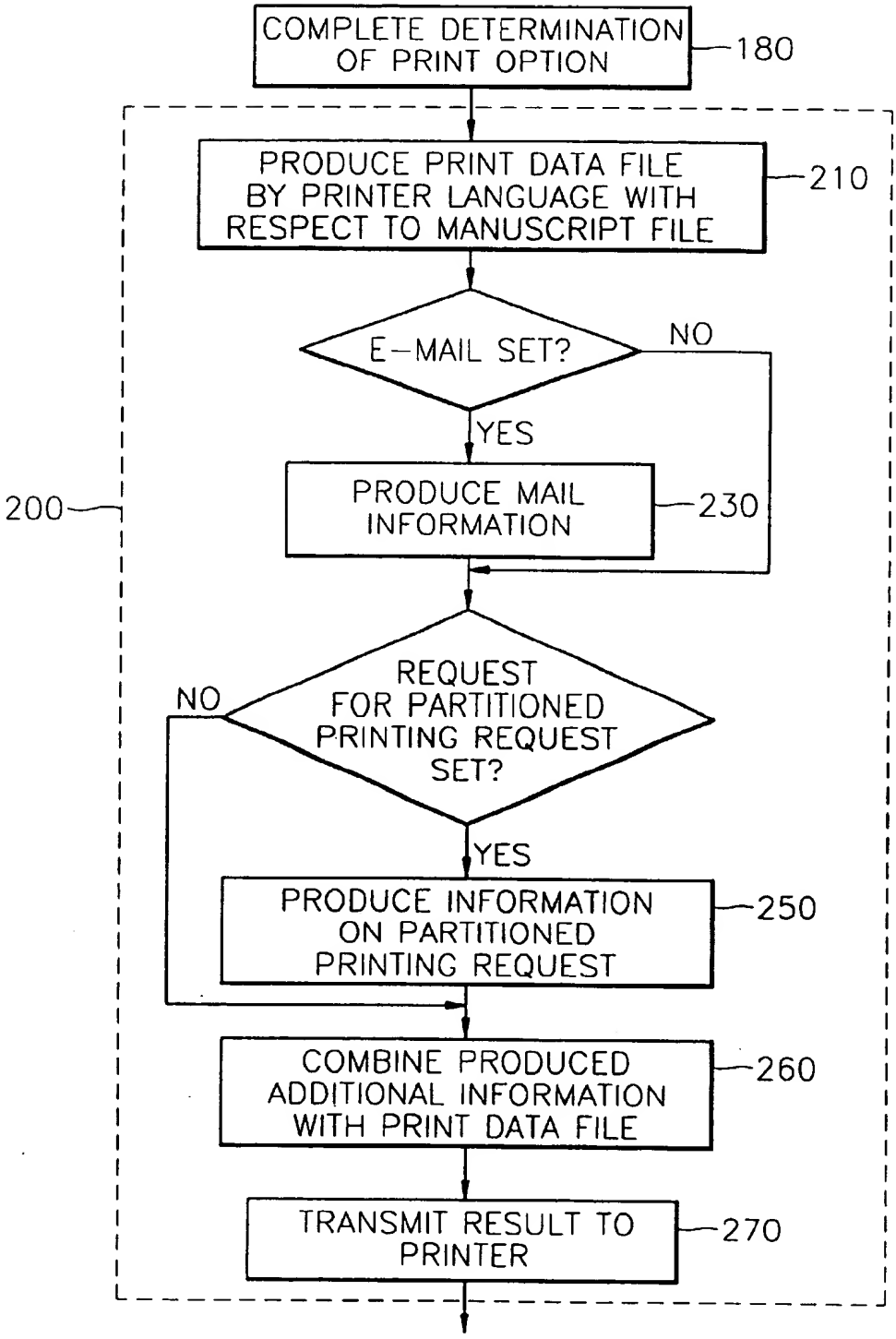
COMPLETE DETERMINATION OF PRINT OPTION
180
200
PRODUCE PRINT DATA FILE BY PRINTER LANGUAGE WITH RESPECT TO MANUSCRIPT FILE
210
E-MAIL SET?
NO
YES
PRODUCE MAIL INFORMATION
230
REQUEST FOR PARTITIONED PRINTING REQUEST SET?
NO
YES
PRODUCE INFORMATION ON PARTITIONED PRINTING REQUEST
250
COMBINE PRODUCED ADDITIONAL INFORMATION WITH PRINT DATA FILE
260
TRANSMIT RESULT TO PRINTER
270

FIG. 6C

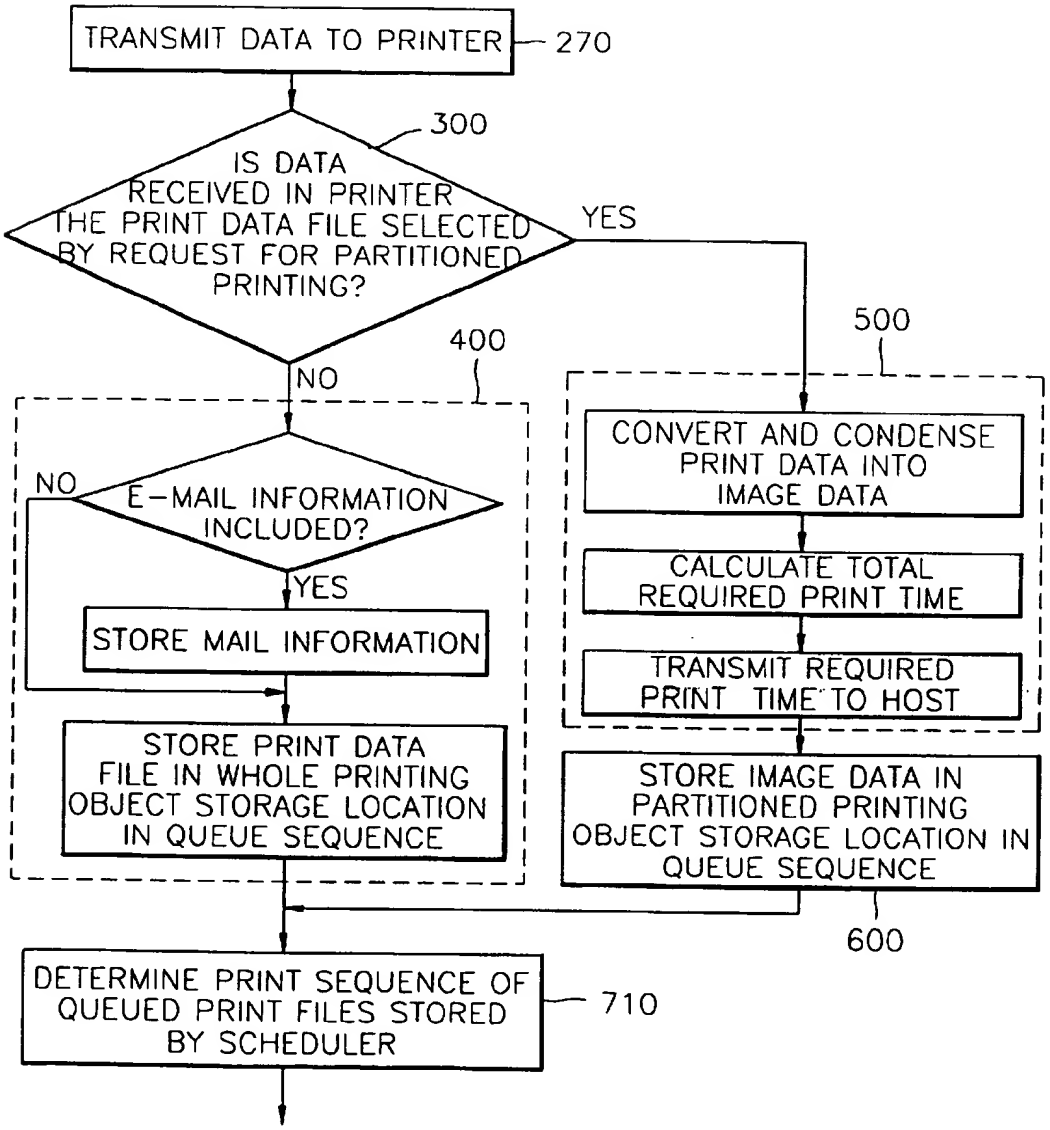
TRANSMIT DATA TO PRINTER
270
300
IS DATA RECEIVED IN PRINTER THE PRINT DATA FILE SELECTED BY REQUEST FOR PARTITIONED PRINTING?
YES
NO
400
500
NO
E-MAIL INFORMATION INCLUDED?
YES
STORE MAIL INFORMATION
STORE PRINT DATA FILE IN WHOLE PRINTING OBJECT STORAGE LOCATION IN QUEUE SEQUENCE
CONVERT AND CONDENSE PRINT DATA INTO IMAGE DATA
CALCULATE TOTAL REQUIRED PRINT TIME
TRANSMIT REQUIRED PRINT TIME TO HOST
STORE IMAGE DATA IN PARTITIONED PRINTING OBJECT STORAGE LOCATION IN QUEUE SEQUENCE
600
DETERMINE PRINT SEQUENCE OF QUEUED PRINT FILES STORED BY SCHEDULER
710

FIG. 6D

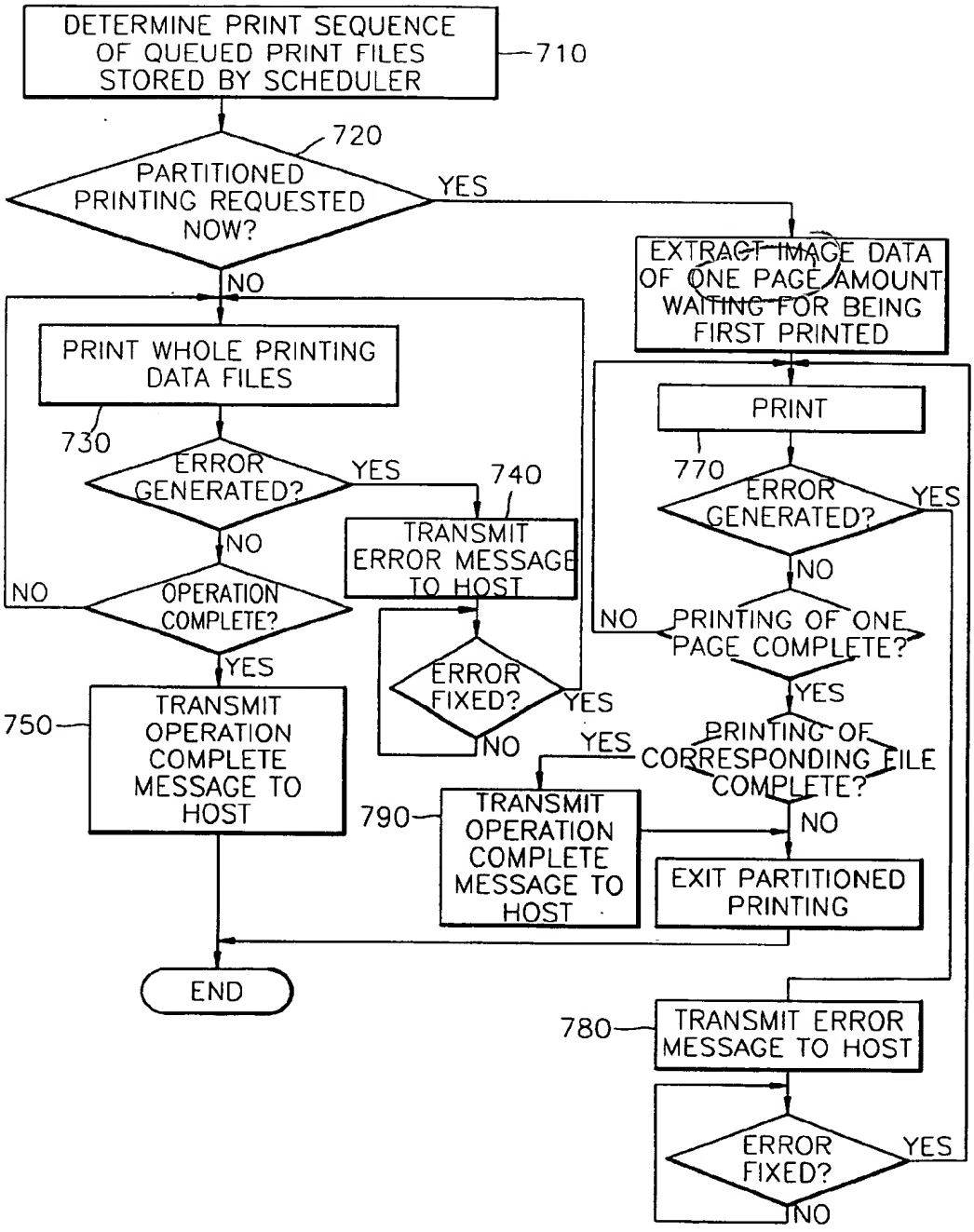
DETERMINE PRINT SEQUENCE OF QUEUED PRINT FILES STORED BY SCHEDULER
710
720
PARTITIONED PRINTING REQUESTED NOW?
YES
NO
EXTRACT IMAGE DATA OF ONE PAGE AMOUNT WAITING FOR BEING FIRST PRINTED
PRINT WHOLE PRINTING DATA FILES
730
ERROR GENERATED?
YES
740
TRANSMIT ERROR MESSAGE TO HOST
NO
NO
OPERATION COMPLETE?
YES
750
TRANSMIT OPERATION COMPLETE MESSAGE TO HOST
ERROR FIXED?
YES
NO
PRINT
770
ERROR GENERATED?
YES
NO
NO
PRINTING OF ONE PAGE COMPLETE?
YES
YES
PRINTING OF CORRESPONDING FILE COMPLETE?
NO
790
TRANSMIT OPERATION COMPLETE MESSAGE TO HOST
EXIT PARTITIONED PRINTING
END
780
TRANSMIT ERROR MESSAGE TO HOST
ERROR FIXED?
YES
NO

FIG. 7

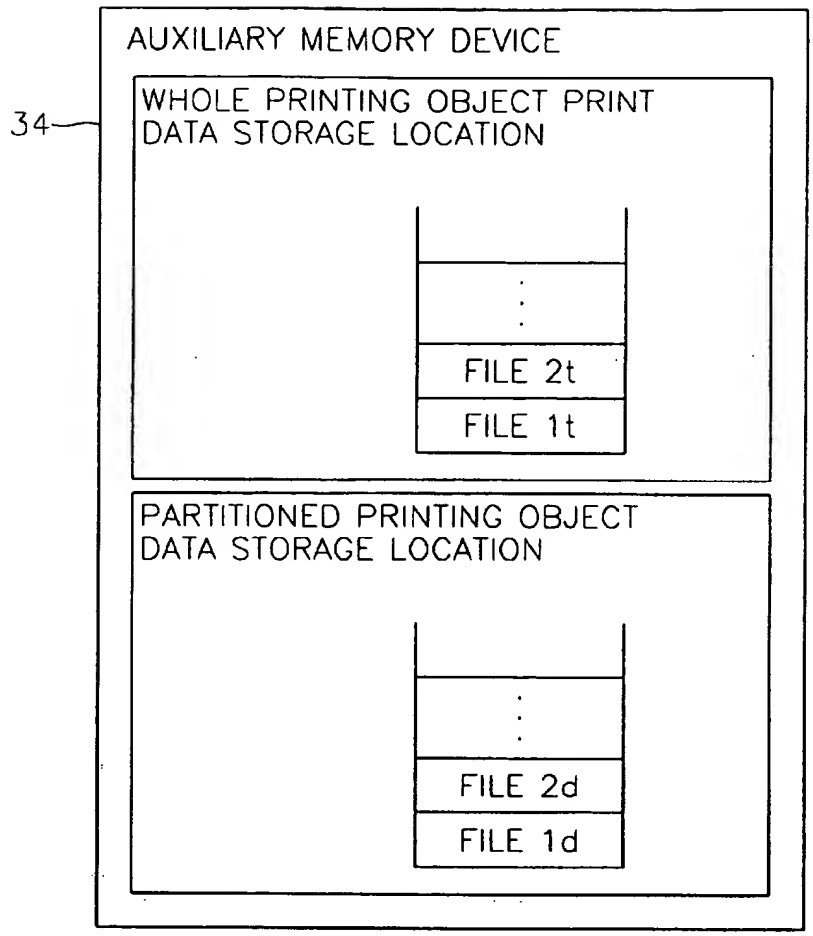
AUXILIARY MEMORY DEVICE
34
WHOLE PRINTING OBJECT PRINT DATA STORAGE LOCATION
FILE 2t
FILE 1t
PARTITIONED PRINTING OBJECT DATA STORAGE LOCATION
FILE 2d
FILE 1d

FIG. 8

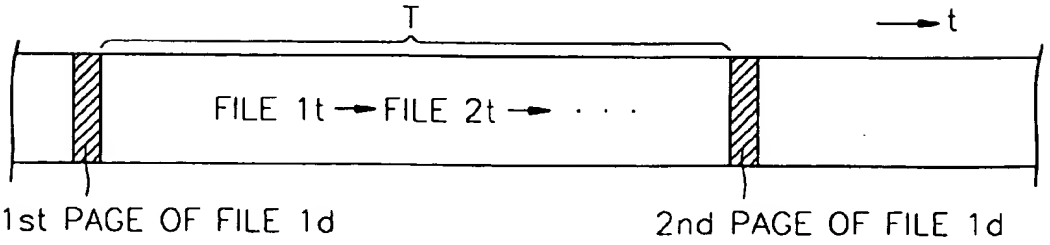
T
t
FILE 1t → FILE 2t → · · ·
1st PAGE OF FILE 1d
2nd PAGE OF FILE 1d

IMAGE PRINTING SYSTEM AND PARTITIONED PRINTING METHOD THEREIN

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to an image printing system and a partitioned printing method therein. More particularly, the present invention relates to an image printing system for controlling the print queue sequence according to the print speed selection with respect to a print object file, and a partitioned printing method therein.

2. Description of the Related Art

An image printing system includes a computer and a printer connected to the computer by a communications interface. The printer translates a print object manuscript file transformed into a print language and transmitted from the computer, and prints an image corresponding to the translated result on one or more supplied paper sheets.

The printer provides status information to a connected computer, as to whether a printing operation is possible or not. Typical status information includes a busy signal indicating that a data storage buffer is full of received data, a paper empty signal indicating that the main paper supply source is empty, an error signal indicating that a paper sheet is jammed during printing or that a printing operation can no longer be performed due to another critical problem. When printers are connected to a plurality of computers by a network, the printer generally provides information such as the file name, received time and size of queued print data stored in the buffer to a user computer requesting the information. Accordingly, the user can view a queued list obtained by communication with the printer, through a display device of the computer.

A conventional printer determines the print operation sequence using a first-in first-out method and performs printing by file according to the determined operation sequence. In the first-in first-out printing processing method of a printer, the printing sequence cannot be changed for a print data file transmitted from a user who wishes to perform an urgent printing operation. Thus, it is inconvenient for the user to use the printer.

There is a method for deleting all previously-received print data files corresponding to an impediment from the printer, in order to print a print data file which is required to be urgently printed. However, the print data files deleted from the printer cannot be restored, so users who sent the deleted print data files must again instruct the computer to transmit the desired files to the printer.

SUMMARY OF THE INVENTION

To solve the above problems, it is an objective of the present invention to provide an image printing system for controlling a print sequence with respect to a print data file received in accordance with a user's request, and a partitioned printing method therein.

Accordingly, to achieve the above objective, an image printing system is provided which includes a printer driver installed in a computer and printer controller installed in a printer corresponding to the computer. The printer driver, which is installed in the computer, provides a print option menu on a screen of a display device to allow a user to select either whole printing or partitioned printing on a print object manuscript file to be printed, and outputs the selected result information to the printer together with a print data file transformed into a printer language with respect to the manuscript file. The printer controller, which is installed in the printer, reads data transmitted from the computer via a communications interface and determines a print sequence by a printer engine so that the total pages of a print data file selected to be printed by partitioned printing are divided and printed in segments at intervals of a set period in units of a determined number of pages.

Preferably, the printer controller determines the print sequence by the printer engine to print a print data file selected to be printed by whole printing, during the period.

Also, to achieve the above objective, a partitioned printing method, for use in an image printing system including a computer and a printer connected to the computer by a communications interface, is provided. The method comprises the steps of:

(a) requesting a selecting of either whole printing or partitioned printing on a print object manuscript file on a print option selection menu screen using an input device of the computer when a request for printing is selected through the input device of the computer;

(b) Transmit information on the selected print option to the printer, together with a print data file obtained by transforming the manuscript file into a printer language; and

(c) reading the print option information transmitted together with the print data file, and printing a print data file so that the total pages of a received print data file selected to be printed by partitioned printing are divided and printed in segments at intervals of a predetermined period in units of a predetermined number of pages.

It is preferable that in the printing step, a received print data file selected to be printed by whole printing is printed during the period.

BRIEF DESCRIPTION OF THE DRAWINGS

The above objective and advantage of the present invention will become more apparent by describing in detail a preferred embodiment thereof with reference to the attached drawings in which:

FIG. **1** is a block diagram illustrating an image printing system according to the present invention;

FIG. **2** is a block diagram illustrating the structure of the user computer of FIG. **1**;

FIG. **3** is a block diagram illustrating the structure of the printer of FIG. **1**;

FIG. **4** illustrates an example of a print option selection menu displayed on a screen of a user computer display device of FIG. **2**;

FIG. **5** is a flowchart for illustrating a partitioned printing method according to the present invention;

FIGS. **6**A through **6**D are flowcharts illustrating the detailed process of each step of FIG. **5**;

FIG. **7** illustrates print data files classified and stored in an auxiliary storage device of a printer for explaining an example of a method of determining the sequence of printing data files input to the printer; and

FIG. **8** is an operation performance timing diagram illustrating printing according to a method of determining the sequence of printing data files input to a printer.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. **1**, a plurality of user computers **10** are connected to a printer **30** via a network **20** which is a

communications interface. A network host **21** relays data between the printer **30** and the user computers **10**. An electronic mailbox **22** installed in the network host **21** sends received electronic mail to a requested address.

Each user computer **10**, as shown in FIG. **2**, has a CPU **11**, a ROM **12**, a RAM **13**, a storage device **15**, a communications device **16**, an input device **17**, and a display device **18** which are interconnected by a bus **14**. The input device **17** may be a keyboard, a mouse, or other devices. A network card or a modem can be used as the communications device **16**.

The storage device **15** stores a variety of application programs such as a printer driver **15***a* and a document editor **15***b*.

The printer driver **15***a* provided in the storage device **15** provides a print option menu via a screen of the display device **18** to allow a user to select either whole printing or partitioned printing with respect to a print object manuscript file, makes a print data file by transforming a manuscript file into a print language, and transmits the print data file, including selected print option information, to a printer.

FIG. **4** shows an example of a print option selection menu **15***d* supplied by the printer driver **15***a* via a screen of the display device **18**. Referring to FIG. **4**, a selection item such as the print selection, the number of copies, the print speed, and E-mail with respect to a print object manuscript file, are displayed on the screen. In particular, the print speed (either "whole printing" or "partitioned printing") must be selected. Print option information selected by a user via the input device **17** on a print option selection menu **15***d* provided on the screen is transmitted to the printer **30** together with the print data file transformed into the print language.

Meanwhile, as shown in FIG. **3**, the printer **30**, which is connected to the computers **10** via the network **20** for performing a printing operation corresponding to received print data, includes a printer controller **31**, a printer engine **32**, an input panel **33**, an auxiliary memory device **34**, and a communications device **35** such as a network card.

The printer controller **31** reads data transmitted from the computer **10** via the communications interface **20** and controls the printing operation of the printer engine **32** on demand. For a print data file to be printed in segments, the printer controller **31** controls the sequence of printing by the printer engine **32** to perform intermittent partitioned printing at predetermined intervals for predetermined sheets of pages. For a print data file to be collectively printed, the printer controller **31** controls the sequence of printing by the printer engine **32** to perform a whole printing operation during the period between partitioned printing operations.

In the case of a color printer (not shown), the printer engine **32** has an optical scanning apparatus for scanning light, corresponding to image data into which printing data is converted in accordance with the driving of the engine, on a photosensitive medium, a developer for developing an electrostatic latent image formed on the photosensitive medium with a developing material, a transcriber for transcribing an image formed of a developing material on the photosensitive medium to a supplied paper sheet, and a paper discharger for discharging the paper, on which an image is transcribed, to an designated paper discharge box.

Preferably, a plurality of paper discharge boxes, that are different from each other in a paper discharging path, are provided to prevent printed matter, produced by the request for partitioned printing, from being mixed with printed matter produced by the request for whole printing. The paper discharger is controlled so that the printed matter produced by the partitioned printing request and that produced by the whole printing request can be respectively discharged to different paper discharge boxes via different paths. Here, the printed matter denotes a paper on which an image is printed via the transcriber.

A plurality of input keys for selecting various printing functions provided by the printer **30** are provided in the input panel **33** generally installed on the outer surface of a main body. A key input signal corresponding to manipulation of input keys is transmitted to the printer controller **31**.

The auxiliary memory device **34** stores the print data file received under the control of the printer controller **31** and image data converted for use by the printer engine **32**.

A printing method by the image printing system will now be described referring to the flowcharts of FIG. **5** and FIGS. **6**A through **6**D.

First, a user sets a print option via a print option selection menu **15***d* (see FIG. **4**) provided by the printer driver **15***a* installed in the computer **10**, in step **100**. Such a print option setting process will now be described in more detail, referring to FIG. **6**A and the print option selection menu of FIG. **4**. A user clicks a printing request icon **15***c* of FIG. **4**, provided by the document editor **15***b* of the computer **10**, using a mouse or keyboard, and a print option setting request (see step **110** of FIG. **6**A) is thus transmitted. If the print option setting request is selected, the print option selection menu **15***d* is supplied by the printer driver **15***a* via a screen of the display device **18**. The user selects a print option using the input device **17** while viewing the provided print option selection menu **15***d*. The information selected by the user is stored in a memory location set for use to record the print option.

When the E-mail option among the items on the print option menu **15***d* is selected as "on", the E-mail address is received and recorded. Also, when partitioned printing is selected on the print speed item, partitioned printing request information is recorded. Otherwise, whole printing request information is recorded. In addition, information selected with respect to other parameters such as the print selection and the number of copies is recorded, in step **170** of FIG. **6**A. When a "print" button on the screen is selected, determination of the print option is completed, in step **180** of FIG. **6**A. After determination of the print option is required in step **110** of FIG. **6**A, if the print option set as a default value is consistent with an item intended to be selected by the user, the procedure returns to the step **180**.

If the print option selection is completed, the printer driver **15***a* produces a print data file with respect to a print object manuscript file stored in the storage device **15** according to the transform system of the selected printer language (e.g., post script, print control language (PCL), etc.). Then, the selected print option information together with the print data file is transmitted to the printer **30**, in step **200** in FIG. **5**. Such a process will be described referring to FIG. **6**B.

In FIG. **6**B, a print data file for use by a printer is produced from a manuscript file, in step **210**. Then, the selected print option information is read, and if the E-mail selection is set to "on", necessary information such as the mail address of a computer **10** is produced, in step **230**. When the partitioned printing request is set, information on partitioned printing is produced, in step **250**. Then, information produced in association with the print option is combined with the print data file in step **260**. The result is transmitted to the printer **30** in step **270**.

The printer controller **31** determines whether partitioned printing is requested, by reading transmitted information from the received printing data file, in step **300** of FIG. **5**.

Referring to FIG. 6C, a print data file to be printed by whole printing is stored together with mail information in a whole printing object storage location, in step **400**. Here, the print sequence among print data files stored in the whole printing object storage location is determined according to the received sequence.

In contrast, for the print data file required to be printed by partitioned printing, the total time required to complete the printing operation is calculated, and the calculated total required time or information on expected printing completion time calculated from the total time required is transmitted to a computer **10** which sent the print data file, in step **500**. According to the process for calculating the total required time, the print data file is converted into image data for the printer engine **32**. The total number of pages to be printed is calculated from the image data. When one page at a time is set to be printed, the total time required is obtained by adding the product of the time required to print one page by the total number of pages, to the product of the result obtained by subtracting 1 from the total number of pages by the period.

The required printing time calculated in this way is transmitted to the computer **10** which sends the print data file via the network **20**. The image data converted for use of the printer engine **32** is stored in a partitioned printing object storage location (see FIG. **7**) allocated in the auxiliary memory device **34**, in step **600**. The print order among the print data files stored in the partitioned object storage location is determined according to the order received.

Thereafter, printing is performed according to the print sequence between print data files determined by the scheduler of the printer controller **31**, in step **700**. The determination of the print sequence and the printing operation according to the determined operation sequence will now be described in more detail referring to FIG. **6D**. Referring to FIG. **6D**, in step **710**, the print sequence by the printer engine is determined so that for received print data files selected to be printed by partitioned printing, the predetermined number of pages among the partitioned printing object print data files can be intermittently printed at predetermined intervals. Between intervals, the print sequence is determined so that received print data files selected to be printed by whole printing can be printed. The time required to print the predetermined number of pages of the partitioned printing object between the determined intervals, and the interval are appropriately selected.

As an example, the whole printing object print data and the partitioned printing object print data are separated and stored according the sequence received in the auxiliary memory device **34** as shown in FIG. **7**. For the partitioned printing object files, a predetermined quantity, e.g., one page, of a previously-received file, i.e., a file 1*d*, is printed by the printer engine at intervals of a predetermined period (T). For the whole printing object files, the printing sequence is determined so that files 1*t* and 2*t* can be sequentially processed according to the sequence received, i.e., by a first-in first-out method, during the period (T), as shown in FIG. **8**, in step **710** of FIG. **6C**.

Meanwhile, in this print sequence determination method, when the partitioned printing object print data file is received, the print sequence can be determined so that the current printing operation on the whole printing object print data files is appropriately stopped, and, immediately, the partitioned printing object print data file can be printed. Alternatively, the whole printing object print data files received prior to the partitioned printing object print data file are all processed, and then the partitioned printing object print data file can be printed.

According to such a print sequence determination method, it is determined whether a partitioned printing operation is requested, in step **720**. The scheduler determines the time by the determined period interval, and if the partitioned printing object data remains in the auxiliary memory device, it is determined that the partitioned printing is required to be performed, in step **720**.

If the partitioned printing operation is not requested at this time, a print data file of the first order determined according to the receiving sequence and print data files of the following order, among the print data files stored in the whole printing object storage location, are sequentially and continuously printed during the set period, in step **730**. Here, when the total pages of the whole printing object print data files are not all printed during the period, a partitioned printing object page of the next order is printed, and the remaining unprocessed pages are printed during a subsequent period.

For a print data file on which operation errors occur during printing or printing is completed, an error generation or print completion message is transmitted to a corresponding computer, in steps **740** and **750**.

If it is determined in step **720** that the partitioned printing operation was requested to be currently performed, image data of one page quantity of a print data file to be printed first with respect to the print data files stored in the partitioned printing object storage location is printed by the printer engine, in step **770**. In this step, when print errors are generated or a printing operation of file units is completed, an error or completion message is transmitted to the corresponding computer, in steps **780** and **790**.

As described above, in the image printing system and the whole or partitioned printing method according to the present invention, non-urgent print object files can be printed by partitioned printing. Thus, printer use time between users can be adjusted.

Although the present invention has been described herein in terms of a preferred embodiment, it will be understood by those of skill in the art that various changes and modifications may be made to the described embodiment without departing from the spirit and scope of the claimed invention.

This application is based on Korean Patent Application No. 97-74986, which is incorporated by reference herein for all purposes.

What is claimed is:

1. An image printing system comprising:

a printer driver installed in a computer, for providing a print option menu on a screen of a display device to allow a user to select either whole printing or partitioned printing on a print object manuscript file to be printed, and outputting the selected result information to a printer, connected to said computer, together with a print data file transformed into a printer language with respect to the manuscript file; and

a printer controller installed in said printer, for reading data transmitted from the computer via a communications interface and determining a print sequence by a printer engine so that the total pages of a print data file selected to be printed by partitioned printing are divided and printed in segments at intervals of a set period in units of a determined number of pages.

2. The image printing system as claimed in claim **1**, wherein the printer controller determines the print sequence by the printer engine to print a print data file selected to be printed by whole printing, during the set period.

3. The image printing system as claimed in claim 1, wherein the printer controller calculates the expected printing completion time with respect to a print data file selected to be printed by partitioned printing and transmits the calculated printing completion time information to the computer which sent the print data file.

4. The image printing system as claimed in claim 1, wherein the communications interface is a network for relaying information exchange between a plurality of computers and at least one printer.

5. A partitioned printing method for use in an image printing system which includes a computer and a printer connected to the computer by a communications interface, the printing method comprising the steps of:

requesting a selection of either whole printing or partitioned printing on a print object manuscript file on a print option selection menu screen using an input device of the computer when a request for printing is selected through the input device of the computer;

transmitting information on the selected print option to the printer, together with a print data file obtained by transforming the manuscript file into a printer language;

reading the print option information transmitted together with the print data file; and

printing a print data file so that the total pages of a received print data file selected to be printed by partitioned printing are divided and printed in segments at intervals of a predetermined period in units of a predetermined number of pages.

6. The partitioned printing method in an image printing system as claimed in claim 5, wherein in the printing step, a received print data file selected to be printed by whole printing is printed during the period.

7. The partitioned printing method in an image printing system as claimed in claim 5, wherein the printing step further comprises a process for calculating the expected printing completion time with respect to the received print data file selected to be printed by partitioned printing and informing the computer which sent the print data file of the calculated printing completion time information.

8. The partitioned printing method in an image printing system as claimed in claim 6, wherein in the printing step, paper sheets on which printing is performed by a printer engine at the period intervals upon the request for partitioned printing are discharged in a different path from a path along which paper sheets on which whole printing is performed are discharged, to prevent the paper sheets printed by partitioned printing from mixing with the paper sheets printed by whole printing.

9. A computer program, embodied on one or more computer-readable media, for controlling an image printing system which includes a computer and a printer connected to the computer by a communications interface, comprising:

a requesting code segment for requesting from a user a selection of either whole printing or partitioned printing on a print object manuscript file on a print option selection menu screen using an input device of the computer when a request for printing is selected through the input device of the computer;

a transmitting code segment for transmitting information on the selected print option to the printer, together with a print data file obtained by transforming the manuscript file into a printer language;

a reading code segment for reading the print option information transmitted together with the print data file; and

a printing code segment for printing a print data file so that the total pages of a received print data file selected to be printed by partitioned printing are divided and printed in segments at intervals of a predetermined period in units of a predetermined number of pages.

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